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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,848	11/07/2001	Hiroki Nakamaru	1315-01	2392

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IP DEPARTMENT OF PIPER RUDNICK LLP
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EXAMINER	
LISH, PETER J	

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,848	NAKAMARU ET AL.	
	Examiner	Art Unit	
	Peter J Lish	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 11-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 11-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant's arguments filed 10/02/2003 have been fully considered but they are not persuasive.

Applicant argues, with respect to the reference to Japka, that Japka discloses an alloy material that covers 100% of the iron particles. Japka teaches that the alloy powders substantially cover and suitably cover the iron particles, yet nowhere teach 100% or full covering. The teaching of a suitable and substantial covering is not equivalent to the teaching of 100% covering. A covering of 99%, as claimed, is viewed to be equivalent to "substantially covered".

Applicant also argues that the teaching of Japka to coat the iron particles with titanium oxide is insufficient to allow for a resistivity within the claimed range, citing documentation that TiO_2 has a resistivity outside of the claimed range. First, it is seen from the supplied document that titanium oxide, TiO, and higher titanium oxides such as Ti_2O_3 and Ti_3O_5 have resistivities within the claimed range. Therefore it is expected that at least a portion of the titanium oxide have a composition that meets the resistivity requirement. Second, the document that is relied upon is extremely difficult to interpret and the two documents appear to conflict with each other, such as in the case of TiO, amongst others. Clearer documentation is needed.

Applicant argues, with respect to the reference to Ogura, that Ogura has less than 1% of the iron powder surface covered with the oxide species. This is neither taught by Ogura, nor expected. It is taught that the oxide species is dispersedly existent in the vicinity of the surface of the iron powder. Therefore, it is expected that the powder exists on at least 1% of the surface.

Applicant also argues that the teaching of Ogura to use an oxide selected from Cr_2O_3, MnO, SiO_2, V_2O_3, TiO_2, and Al_2O_3, is insufficient because these oxides do not meet the claimed resistivity range. However, the documentation relied upon is extremely difficult to interpret, is often unclear due to bad copying, is often lacking in areas, such as the lack of translation for the resistivity of V_2O_3 in document 2, and the two documents often appear to conflict with each other. Clearer documentation is needed. Furthermore, applicant claims V_2O_3 as a preferred species and asserts that it has a resistivity within the claimed range.

Applicant argues, with respect to the reference to Moro, that Moro one would not expect the covering rate of the inorganic insulating material to be within the claimed range of between 1 and 99% because it is difficult to specifically define the covering rate in such a surface treatment. However, one of ordinary skill would have expected a covering rate within the claimed range, as the claimed range is so large and because the inorganic insulating material may be added in a wide range of amounts, specifically between 0.1 and 15% by volume of solids.

Applicant also argues that it would not make sense to use TiC or TiN, as disclosed by Moro, for an insulating material. However, this does not alter the teaching of Moro, which clearly teaches the use of TiC or TiN.

Applicant argues, with respect to the reference to Arvidsson, that Arvidsson fails to disclose an inorganic compound having a resistivity within the claimed range because Arvidsson does not specify a specific oxide composition of titanium or vanadium. However, it is seen that Arvidsson teaches the use of the oxides of these metals and therefore a variety of oxide compositions is taught, including those with resistivities in the claimed range.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

Claims 1-4 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Borg et al. (US 3,723,359).

Borg teaches a homogenous powder comprising a mixture of finely divided particles of metal carbide and metal, specifically a powder comprising titanium carbide and iron. Titanium carbide is known to have electrical resistivities within the claimed range of 10^{-4} ohm-m or less. The percentage of the surface that is covered with the titanium carbide is not explicitly taught, however, the amount of metal, i.e. iron, in the composite powder may be varied between 2 and 75 weight percent. It is therefore expected that the amount of titanium carbide on the surface of the powder is between 1 and 99%, and additionally may be between 10 and 50% by area.

Regarding claims 17-18, it is expected that the coating and the iron powder are conductively connected and therefore the reducing action of the iron powder is increased, because the metal carbide and metal fractions are in close contact. No difference is seen between the material of Borg et al. and that of the instantly claimed invention.

Claims 1-4, 11-12, and 17-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japka '292

Japka teaches iron powder substantially coated with an alloy material that may be selected from refractory oxides, such as silica, aluminum oxide, aluminates, and titanium oxide,

or intermetallics, such as iron silicide and iron carbide. Titanium oxide is known to have electrical resistivities within the claimed range of 10^{-4} ohm-m or less. Japka does not explicitly teach the covering rate of the alloy material, however, Japka does teach that the iron powders are substantially covered. Therefore, it is expected that the covering rate be above about 90%.

Regarding claim 11, it is not explicitly taught that iron powder of Japka contain silicon in an amount of between 0.005% to 0.30% by mass, however, it is expected that this be the case, as this is a common range for silicon impurities in iron. Alternatively, it would have been obvious to one of ordinary skill at the time of invention to treat an iron powder having a silicon impurity within the claimed range, using the teaching of Japka to form the modified iron powder of Japka.

Regarding claims 17-18, it is expected that the coating and the iron powder are conductively connected and therefore the reducing action of the iron powder is increased, because no difference is seen between the material of Japka and that of the instantly claimed invention.

Claims 1-4, 11-12, and 17-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ogura '670.

Ogura teaches iron powder that has an oxide of Cr_2O_3, MnO, SiO_2, V_2O_3, TiO_2, or Al_2O_3 dispersedly existent in the vicinity of the surface of the iron powder. V_2O_3 is known to have an electrical resistivity within the claimed range of 10^{-4} ohm-m or less. It is not explicitly taught that the oxide exist on at least 1% of the surface, however, this is expected because of the existence of the oxide only near the surface.

Regarding claim 11, it is not explicitly taught that iron powder of Ogura contain silicon in an amount of between 0.005% to 0.30% by mass, however, it is expected that this be the case, as this is a common range for silicon impurities in iron. Alternatively, it would have been obvious to one of ordinary skill at the time of invention to treat an iron powder having a silicon impurity within the claimed range, using the teaching of Ogura in order to form the modified iron powder of Ogura.

Regarding claims 17-18, it is expected that the coating and the iron powder are conductively connected and therefore the reducing action of the iron powder is increased, because no difference is seen between the material of Ogura and that of the instantly claimed invention.

Claims 1-4 and 11-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moro '823.

Moro teaches iron powder with a coating containing an inorganic insulating material, such as titanium carbide or titanium nitride, which are known to have an electrical resistivity within the claimed range of 10^{-4} ohm-m or less. Moro does not explicitly teach that the surface covering of the inorganic insulating material, however, it is expected that the covering rate be between 1% and 99%, as the claimed range is so large and because the inorganic insulating material may be added in a wide range of amounts, specifically between 0.1 and 15% by volume of solids.

Regarding claim 11, it is not explicitly taught that iron powder of Moro contain silicon in an amount of between 0.005% to 0.30% by mass, however, it is expected that this be the case, as

this is a common range for silicon impurities in iron. Alternatively, it would have been obvious to one of ordinary skill at the time of invention to treat an iron powder having a silicon impurity within the claimed range, using the teaching of Moro in order to form the modified iron powder of Moro.

Regarding claims 13 and 16, it is not explicitly taught that the amount of the inorganic insulating material coating the surface of the iron powder be between 10 and 50% of the surface, however, Moto teaches that the inorganic insulating material may be added to the coating in an amount of up to 15% by volume of total solids. Because the inorganic insulating material may be added in such an amount and because the material is located in the coating, which is primarily on the surface of the iron powder, it is expected that the amount of inorganic insulating material be within the claimed range.

Regarding claims 14 and 17-18, it is expected that the inorganic insulating material in the coating and the iron powder are conductively connected, and therefore the reducing action of the iron powder is increased, because at least a portion of the inorganic insulating material contacts the surface of the iron powder and therefore no difference is seen between the material of Moro and that of the instantly claimed invention.

Claims 1-3 and 11-12 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Arvidsson '166.

Arvidsson teaches an iron powder coated with a composition containing the oxides of titanium or vanadium. Many of the oxides of titanium and vanadium are known to have an electrical resistivity within the claimed range of 10^{-4} ohm-m or less. The surface covering is not

explicitly taught, however, it is expected that the surface covering be between 1 and 99%, because the metal oxide is located in the coating and may be present in an amount of up to 2 weight percent of the total composition.

Regarding claim 11, it is not explicitly taught that iron powder of Arvidsson contain silicon in an amount of between 0.005% to 0.30% by mass, however, it is expected that this be the case, as this is a common range for silicon impurities in iron. Alternatively, it would have been obvious to one of ordinary skill at the time of invention to treat an iron powder having a silicon impurity within the claimed range, using the teaching of Arvidsson in order to form the modified iron powder of Arvidsson.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL

STUART L. HENDRICKSON
PRIMARY EXAMINER